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1 [An updated survey of GA-based multiobjective optimization techniques](#)

Carlos A. Coello

June 2000 **ACM Computing Surveys (CSUR)**, Volume 32 Issue 2

Full text available: [pdf\(250.77 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

After using evolutionary techniques for single-objective optimization during more than two decades, the incorporation of more than one objective in the fitness function has finally become a popular area of research. As a consequence, many new evolutionary-based approaches and variations of existing techniques have recently been published in the technical literature. The purpose of this paper is to summarize and organize the information on these current approaches, emphasizing the importance ...

Keywords: artificial intelligence, genetic algorithms, multicriteria optimization, multiobjective optimization, vector optimization

2 [Networked agents for scientific computing](#)

Tzvetan Drashansky, Elias N. Houstis, Naren Ramakrishnan, John R. Rice

March 1999 **Communications of the ACM**, Volume 42 Issue 3

Full text available: [pdf\(441.16 KB\)](#)

[html\(29.20 KB\)](#)

Additional Information: [full citation](#), [references](#), [index terms](#)

3 [Session 9C: evolution, adaptation, and learning II: Learning and exploiting context in agents](#)

Bruce Edmonds

July 2002 **Proceedings of the first international joint conference on Autonomous agents and multiagent systems: part 3**

Full text available: [pdf\(308.02 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The use of context can considerably facilitate reasoning by restricting the beliefs reasoned upon to those relevant and providing extra information specific to the context. Despite the use and formalization of context being extensively studied both in AI and ML, context has not been much utilized in agents. This may be because many agents are only applied in a single context, and so these aspects are implicit in their design, or it may be that the need



to explicitly encode information about vari ...

Keywords: biological analogy, cognitive analogy, context, deduction, evolutionary computation, genetic programming, integration, learning

4 Piecewise smooth surface reconstruction

Hugues Hoppe, Tony DeRose, Tom Duchamp, Mark Halstead, Hubert Jin, John McDonald, Jean Schweitzer, Werner Stuetzle

July 1994 **Proceedings of the 21st annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(2.37 MB)  ps(296.36 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a general method for automatic reconstruction of accurate, concise, piecewise smooth surface models from scattered range data. The method can be used in a variety of applications such as reverse engineering—the automatic generation of CAD models from physical objects. Novel aspects of the method are its ability to model surfaces of arbitrary topological type and to recover sharp features such as creases and corners. The method has proven to be effective, as demonstrated by ...

Keywords: geometric modeling, range data analysis, shape recovery, subdivision surfaces, surface fitting

5 Critical cases: Achieving safety: a field study of boundary objects in aircraft technical support

Wayne G. Lutters, Mark S. Ackerman

November 2002 **Proceedings of the 2002 ACM conference on Computer supported cooperative work**

Full text available:  pdf(284.65 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Boundary objects are a critical, but understudied, theoretical construct in CSCW. Through a field study of aircraft technical support, we examined the role of boundary objects in the "achievement of safety" by service engineers. The resolution process of repair requests was captured in two compound boundary objects. These crystallizations did not manifest a static interpretation, but instead were continually re-interpreted in light of meta-negotiations. This suggests design implications for orga ...

Keywords: boundary objects, collaborative work, high reliability organizations, hotlines, information reuse, organizational memory, safety, service engineering, technical support

6 An automated procedure for developing hybrid computer simulations of turbofan engines

John R. Szuch, Susan M. Krosel, William M. Bruton

March 1981 **Proceedings of the 14th annual simulation symposium**

Full text available:  pdf(758.83 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper offers a systematic, computer-aided, self-documenting methodology for developing hybrid computer simulations of turbofan engines. The methodology that is presented makes use of a host program that can run on a large digital computer and a machine-dependent target (hybrid) program. The host program performs all of the calculations and data manipulations that are needed to transform user-supplied engine design information to a form suitable for the hybrid computer. The host program ...

7 Communication technology II - Internet, services, and architectures: Object oriented analysis and UML design in the development of accommodation services system

Siti Hafizah Ab. Hamid, Tan Yoke Pei, Nazean Jomhari

September 2003 **Proceedings of the 1st international symposium on Information and communication technologies**

Full text available:  pdf(1.47 MB) Additional Information: [full citation](#), [abstract](#), [references](#)

This paper presents a case study highlighting the best practices in designing and building a multi-technology based system. It used web-based application and WAP-base application in a system. It also used object-oriented analysis and UML in designing. All diagrams offered by UML were used successfully during the process. Microsoft. Net provided adequate support for multi-technology and easily to use in term of using object-oriented in design level. The case study shows that object-oriented metho ...

Keywords: UML design, accommodation services system, object-oriented analysis

8 Full Papers: Hosting activities: experience with and future directions for a robot agent host

Candace L. Sidner, Myroslava Dzikovska

January 2002 **Proceedings of the 7th international conference on Intelligent user interfaces**

Full text available:  pdf(440.84 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper discusses hosting activities. Hosting activities are a general class of collaborative activity in which an agent provides guidance in the form of information, entertainment, education or other services in the user's environment (which may be an artificial or the natural world) and may also request that the human user undertake actions to support the fulfillment of those services. This paper reports on experience in building a robot agent for hosting activities, both the architecture a ...

Keywords: artificial intelligence, collaboration, collaborative interface agents, discourse, embodied agents, hosting agents, intelligent user interfaces, robotics

9 Progressive meshes

Hugues Hoppe

August 1996 **Proceedings of the 23rd annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(431.00 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: geometry compression, level of detail, mesh simplification, progressive transmission, shape interpolation

10 Applications of a numerical geometry system in engineering

J. P. Mayfield, R. M. Burkley

June 1976 **Proceedings of the 13th conference on Design automation**

Full text available:  pdf(712.27 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In December of 1972, a study effort was undertaken at TRA to determine if it was feasible to create a computer based system that would significantly improve the generation, usage and dissemination of geometric information in an engineering, design and manufacturing environment. The effort was divided into several phases: study, system design and

economic evaluation and, finally, implementation. The system which has been implemented is a highly interactive keystroke driven system ...

11 Towards a distributed object-oriented propagation model using Ada95

Donald M. Needham, Steven A. Demurjian, Thomas J. Peters

September 1999 **ACM SIGAda Ada Letters , Proceedings of the 1999 annual ACM SIGAda international conference on Ada**, Volume XIX Issue 3

Full text available:  [pdf\(749.36 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Representing interdependencies between the objects of an object-oriented software application requires design-time mechanisms for specifying object interrelationships, as well as software constructs for the runtime maintenance of these relationships. We present a portion of our software engineering research environment ADAM, (short for Active Design and Analyses Modeling), which incorporates a technique for design-time modeling of *propagations* (our term for the relationships between inter ...

Keywords: Ada languages, distributed systems, methods and techniques, object-oriented technology

12 An Ada95 basis for propagation modeling

D. Needham, S. Demurjian, T. Peters


November 1997 **Proceedings of the conference on TRI-Ada '97**

Full text available:  [pdf\(1.29 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

13 Self-adaptive software for signal processing

Janos Sztipanovits, Gabor Karsai, Ted Bapty

May 1998 **Communications of the ACM**, Volume 41 Issue 5

Full text available:  [pdf\(325.60 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

14 Simulation of a flexible manufacturing cell

Richard Godziela

December 1986 **Proceedings of the 18th conference on Winter simulation**

Full text available:  [pdf\(535.27 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

American aerospace manufacturing operations are evaluating and implementing numerous Flexible Manufacturing Systems. Each application is a complex combination of various support systems found in a more traditional production environment. Predicting how these systems will work within the integrated framework of an FMS can be very complicated. Simulation is a valuable tool for not only evaluating a complex system for feasibility, but it can also be incorporated as a design aid. The following ...

15 Concurrency in object-oriented propagation modeling using Ada95

Donald M. Needham, Steven A. Demurjian, Margaret M. McMahon

September 1998 **ACM SIGAda Ada Letters**, Volume XVIII Issue 5

Full text available:  [pdf\(455.14 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Modeling object interdependency within an object-oriented application requires design-time mechanisms for specifying object interrelationships, as well as software constructs for the runtime maintenance of these relationships. In this paper, we present our technique for the

design-time modeling of *propagations* (our term for the relationships between interdependent objects), with a focus on the concurrently executing portions of our propagation model. We examine our propagation model as im ...

16 Process control supervision using qualitative models

R. K. Stobart, N. R. Shadbolt

June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  pdf(752.28 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In modern process and power plant the cost of installation demands operation at peak efficiency for prolonged periods. This places significant demands on the control and monitoring systems to keep efficiency high while giving significant warning of a drop in efficiency or a component failure. We present an approach to process monitoring based on Qualitative Models which are used as a framework in which a range of monitoring techniques are located. The methods are described in the context of ...

17 A summary of domain analysis experience by way of heuristics

W. Lam, J. A. McDermid

May 1997 **ACM SIGSOFT Software Engineering Notes , Proceedings of the 1997 symposium on Software reusability**, Volume 22 Issue 3


Full text available:  pdf(1.69 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: domain analysis, domain engineering, requirements reuse

18 Session 5C: conversational agents: A plug-in architecture for generating collaborative agent responses

Charles Rich, Neal Lesh, Andrew Garland, Jeff Rickel

July 2002 **Proceedings of the first international joint conference on Autonomous agents and multiagent systems: part 2**

Full text available:  pdf(453.82 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


We describe an implemented architecture for programming the responses of collaborative interface agents out of easily composable and reusable plug-in components, and discuss the underlying theoretical and practical issues. The power of the architecture comes primarily from a rich representation of collaborative discourse state, which includes a focus stack and plan tree. The architecture also provides a useful separation between the principles and preferences underlying an agent's behavior. We i ...

Keywords: action selection and planning, agent architectures, conversational agents, interface agents

19 Session 9D: embodied agents: Learning domain knowledge for teaching procedural skills

Richard Angros, W. Lewis Johnson, Jeff Rickel, Andrew Scholer

July 2002 **Proceedings of the first international joint conference on Autonomous agents and multiagent systems: part 3**

Full text available:  pdf(99.07 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper describes a method for acquiring procedural knowledge for use by pedagogical agents in interactive simulation-based learning environments. Such agents need to be able

to adapt their behavior to the changing conditions of the simulated world, and respond appropriately in mixed-initiative interactions with learners. This requires a good understanding of the goals and causal dependencies in the procedures being taught. Our method, inspired by human tutorial dialog, combines direct specif ...

Keywords: interface agents, knowledge acquisition, machine learning, pedagogical agents, programming by demonstration

20 Verification of heuristic diagnostic knowledge by comparison with a causal/qualitative model

Graham F. Forsyth, Michael E. Larkin, Glen A. Wallace

June 1990 **Proceedings of the third international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 2**

Full text available:  pdf(576.40 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

An approach to verify the knowledge base of a diagnostic expert system is described. An heuristic knowledge base collected from domain experts by interviews was analysed and the reasons for changes between versions were noted. The knowledge base was then compared with a small causal qualitative model of the device covered by the heuristic knowledge. Conclusions are drawn regarding the quality of the heuristic knowledge and indicate how it is planned to use the comparison of heuristic and ca ...

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21 [Concept demonstration of the use of interactive fault diagnosis and isolation for TF30 engines](#)



Graham F. Forsyth, Michael D. Larkin

 June 1989 **Proceedings of the second international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available: pdf(473.42 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Diagnosis of mechanical systems is seen as a mature role for systems incorporating those aspects of Artificial Intelligence usually referred to as "Expert Systems". A project to produce a concept demonstration of an expert advisor for troubleshooting an aircraft gas turbine engine has been completed using available technology. This reinforces the impression that deployment of such systems in operational use is now possible. The task of verifying the diagnosis of such s ...

22 [Computational fluid dynamic-current capabilities and directions for the future](#)



P. Kutler

August 1989 **Proceedings of the 1989 ACM/IEEE conference on Supercomputing**

Full text available: pdf(5.71 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Computational fluid dynamics (CFD) has made great strides in the detailed simulation of complex fluid flows, including some of those not before understood. It is now being routinely applied to some rather complicated problems, and starting to impact the design cycle of aerospace flight vehicles and their components. It is being used to complement and is being complemented by experimental studies. Several examples are presented in the paper to illustrate the current state-of-the-art. Include ...

23 [Data mining to detect abnormal behavior in aerospace data](#)



José M. Peña, Fazel Famili, Sylvain Létourneau

 August 2000 **Proceedings of the sixth ACM SIGKDD international conference on Knowledge discovery and data mining**


Full text available: pdf(179.60 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)**Keywords:** data partitioning, machine learning, trend monitoring

24 Pattern-based fault diagnosis using neural networks

W. E. Dietz, E. L. Kiech, M. Ali

June 1988 **Proceedings of the first international conference on Industrial and engineering applications of artificial intelligence and expert systems - Volume 1**

Full text available:  pdf(1.01 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The detection and diagnosis of faults in real time are active areas of research in knowledge-based expert systems. Several methods of diagnosis have been applied to a variety of physical systems. Rule-based approaches have been applied successfully to some domains. However, encoding knowledge in rule bases raises many difficult knowledge acquisition issues; in addition, rule-based systems are often too slow to be effectively applied in a real-time environment. More advanced diagnostic systems ...

25 Application of integration algorithms in a parallel processing environment for the simulation of jet engines

Susan M. Krosel, Edward J. Milner

March 1982 **Proceedings of the fifteenth annual simulation symposium**

Full text available:  pdf(951.04 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The development of digital dynamic simulations requires careful selection of an appropriate integration algorithm. This paper illustrates the application of predictor-corrector integration algorithms developed for the digital parallel processing environment. The algorithms are implemented and evaluated through the use of a software simulator which provides an approximate representation of the parallel processing hardware. Test cases which focus on the use of the algorithms are presented and ...

26 Open Inventor

Robert Hartley

September 1998 **Linux Journal**

Full text available:  html(23.59 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Mr. Hartley shows how to do interactive 3-D programming using Open Inventor, Release 2, which he used to create the images on our cover

27 Boundary element methods

S. R. Kennon

November 1999 **Proceedings of 1986 ACM Fall joint computer conference**

Full text available:  pdf(381.95 KB)

Additional Information: [full citation](#), [references](#), [index terms](#)

28 The FINITE STRING newsletter: Site report

Jerry R. Hobbs

July 1986 **Computational Linguistics**, Volume 12 Issue 3

Full text available:  pdf(348.83 KB)

Additional Information: [full citation](#), [references](#), [citations](#)

 [Publisher Site](#)

29 Multiagent systems on the net

Anupam Joshi, Munindar P. Singh
March 1999 **Communications of the ACM**, Volume 42 Issue 3

Full text available:  pdf(117.18 KB)  html(8.05 KB) Additional Information: [full citation](#), [citations](#), [index terms](#)

30 Turbine engine maintenance manpower and facility model



Gary E. Sundquist, Robert B. Whitegiver
January 1971 **Proceedings of the 5th conference on Winter simulation**

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

GPSS/360 was used to model manpower allocation in the Turbine Engine Maintenance Process. The purpose was to evaluate alternate proposals for allocation of manpower. Forecasted workloads of engines were processed against these proposals. Simulation outputs included engine production times and quantities of engines produced. Also included are manpower and facility utilization outputs. Appraisal of outputs by management aided in selection of a manpower allocation plan.

31 A comparison of grid generation techniques



S. R. Kennon, G. S. Dulikravich
November 1999 **Proceedings of 1986 ACM Fall joint computer conference**

Full text available:  pdf(786.85 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

32 Websites



September 1999 **netWorker**, Volume 3 Issue 3

Full text available:  pdf(32.36 KB)  html(8.73 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

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